

WHAT IS CLAIMED IS:

1. A thermal transfer element for transferring a black matrix pattern to a receptor, comprising:
5 a substrate;
a light-to-heat conversion layer disposed on the substrate; and
a transfer layer comprising carbon black and having an optical density of at least 3 for white light and a thickness of no more than 1.5 μm , wherein the thermal transfer element is configured and arranged upon transfer of a portion of the transfer
10 layer to a receptor to provide a black matrix pattern having an average resistivity of at least 1×10^{10} ohm-cm.
2. The thermal transfer element of claim 1, wherein the transfer layer
15 comprises 40 to 55 wt.% carbon black.
3. The thermal transfer element of claim 1, wherein the carbon black has an average particle size ranging from 20 to 35 nm.
4. The thermal transfer element of claim 1, wherein the carbon black has
20 2 to 6 wt.% volatile material.
5. The thermal transfer element of claim 1, wherein the carbon black is capable of absorbing 45 to 70 mL of dibutyl phthalate per 100 grams of carbon
25 black.
6. The thermal transfer element of claim 1, further comprising a color-changing coating disposed on a surface of the substrate opposite the light-to-heat conversion layer, wherein the color-changing coating changes colors upon exposure
30 to heat.
7. The thermal transfer element of claim 1, further comprising a color-changing coating disposed between the light-to-heat conversion layer and the substrate, wherein the color-changing coating changes colors upon exposure to heat.

8. The thermal transfer element of claim 1, wherein, when transferred to a receptor, the transfer layer is configured and arranged to provide a black matrix pattern having an average resistivity of at least 1×10^{13} ohm-cm.

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9. The thermal transfer element of claim 1, wherein the transfer layer has a thickness of no more than $1.1 \mu\text{m}$.

10. The thermal transfer element of claim 1, wherein the transfer layer comprises no more than 47 wt.% carbon black.

11. The thermal transfer element of claim 1, wherein, when transferred to a receptor, the transfer layer is configured and arranged to provide a black matrix pattern having an average resistivity of at least 5.1×10^{11} ohm-cm.

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12. The thermal transfer element of claim 1, wherein the transfer layer comprises 40 to 50 wt.% carbon black.

13. A thermal transfer element for transferring a pattern to a receptor, comprising:
a substrate;
a light-to-heat conversion layer disposed on the substrate;
a color-changing coating, wherein the color-changing coating changes colors upon exposure to heat; and
a transfer layer configured and arranged for imagewise transfer of a portion of the transfer layer to the receptor.

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14. The thermal transfer element of claim 13, wherein the color-changing coating is disposed on a surface of the substrate opposite the light-to-heat conversion layer.

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15. The thermal transfer element of claim 13, wherein the color-changing coating is disposed between the light-to-heat conversion layer and the substrate.

16. The thermal transfer element of claim 13, wherein the transfer layer comprises carbon black.

5 17. The thermal transfer element of claim 16, wherein, when transferred to a receptor, the transfer layer is configured and arranged to provide a black matrix pattern having an average resistivity of at least 1×10^{10} ohm-cm, an optical density of at least 3, and a thickness of no more than 1.5 μm .

10 18. The thermal transfer element of claim 13, wherein, prior to changing color upon exposure to heat, the color-changing layer is configured and arranged to be substantially transparent to light convertible by the light-to-heat conversion layer to heat.

15 19. The thermal transfer element of claim 13, wherein, subsequent to changing color upon exposure to heat, the color-changing layer is configured and arranged to at least partially reflect or absorb light convertible by the light-to-heat conversion layer to heat.

20 20. The thermal transfer element of claim 13, wherein the color-changing layer comprises a leuco dye.